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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,177	12/05/2000	Win Vanderbauwhede	Q61789	6597

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SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037-3213

EXAMINER
TRAN, CON P

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 06/19/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/729,177	VANDERBAUWHEDE ET AL	
	Examiner	Art Unit	
	Con P. Tran	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *9* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-3, and 6-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amrany et al. U.S. Patent 6,281,829 in view of Hewinson et al. U.S. Patent 6,288,883.

Regarding **claims 1 and 6**, Amrany et al. teaches a method for echo cancelling (see Fig. 2, and respective portions of the specification) in a communication line system (see col. 4, lines 49-53), characterized in that the method is performed by elements (see col. 4, lines 49-67) of a hybrid (103; see col. 4, lines 32-43) which forms part of the analog front-end (see col. 3, lines 8-10) of the communications line system, whereby the values of the tunable passive elements (resistors; see col. 6, lines 24-27) are controlled by digital control means (104).

However, Amrany et al. does not explicitly show echo cancelling performed by method of adapting tunable passive elements. Adaptive echo cancelling is well known in the art of echo cancellation. Thus one of ordinary skill would have been motivated to

seek method of adapting tunable passive elements in order to provide an actual working arrangement taught by Amrany et al. Such embodiments would have been any known adaptive echo cancellation such as one of Hewinson et al. in the same field of endeavor.

Hewinson et al. teaches (see Fig. 1, 2 and respective portions of the specification) an adaptive cancellation bridge circuit comprising transconductance cells providing resistive, capacitive and inductive components in a bridge network (see col. 1, lines 24-26) in order to improve performance and/or reduced costs, due to simplification of the transmit and receive filter requirements (see col. 1, lines 42-43).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was filing to include within the Amrany et al. an adaptive cancellation bridge circuit as taught by Hewinson et al. since such modification would have improved performance and/or reduced costs, due to simplification of the transmit and receive filter requirements as suggested by Hewinson et al in col. 1, lines 42-43.

Regarding **claims 2 and 7,** Hewinson et al. further teaches a scaling factor (k) is used for adapting the tunable passive elements (col. 2, lines 30-45).

Regarding **claim 3,** Amrany et al. in view of Hewinson teaches a method according to claim 1, Amrany et al. further teaches TX return loss gain in the hybrid whereby, when this gain differs from zero, the digital control means goes through a

loop of adaptation of the tunable passive elements until this zero value of the TX return loss gain is obtained (col. 4, lines 18-32).

3. **Claims 4-5, 8, and 14-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amrany et al. U.S. Patent 6,281,829 in view of Hewinson et al. U.S. Patent 6,288,883, and further in view of Kakuishi U.S. Patent 5,287,406 (cited by applicants).

Regarding **claims 4, and 14-15** Amrany et al. in view of Hewinson et al. teaches a method according to claim 3. Amrany et al. further teaches the CO 5 (Fig. 1) includes a line card (i.e. integrated circuit) that includes a DSP 11 (microprocessor), an AFE which is separate from a line driver and a hybrid (14). Hewinson et al. further teaches adaptive cancellation bridge ACB having transconductance cells TC1, TC2 and TC3 (FIG. 2) in one arm of a bridge network, while another arm is represented by a line L. The other two arms comprise resistors R1 and R2. Each cell is a variable-gain current amplifier, which is arranged to produce variable impedances (col. 1, line 60 – col. 2, line 2).

However, Amrany et al. in view of Hewinson et al. does not explicitly show the tunable passive impedances being tuned such that the value of the tunable balance impedance (Z_b) approximates as close as possible the scaled impedance value of the parallel circuit of the line termination resistance ($2R_t/2n^2$) in the TX paths, and the line impedance ($2Z_{tr+li}$). Thus one of ordinary skill would have been motivated to seek circuit

of adapting tunable passive elements in order to provide an actual working arrangement taught by Amrany et al. and Hewinson et al. in combination. Such circuits would have been any known circuit of Kakuishi in the same field of endeavor.

Kakuishi teaches the impedance Z obtained by viewing the two-wire line depends on the length and type of cable, a plurality of impedance Zx elements are selectively used. The most typical impedance Zx is equal to Z'/2, in which Z' is a standard terminating impedance of a system (col. 2, line 48 – col. 3, line 38) in order provide a simple and less expensive hybrid circuit (col. 4, line 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was filing to include within the by Amrany et al. and Hewinson et al. in combination such circuit as taught by Kakuishi since such modification would have provided a simple and less expensive hybrid circuit, as suggested by Kakuishi in column 4, lines 1-2.

Regarding **claim 5,** Kakuishi further teaches the hybrid comprises a current to voltage converter (99, Fig. 4), the feedback impedance (Zx) of which being adapted so as to be equal to the tunable balance impedance (90).

Regarding **claim 8,** Amrany et al. in view of Hewinson et al. teaches a method according to claim 6, However, Amrany et al. in view of Hewinson et al. does not explicitly show the hybrid comprises a hybrid bridge and a current to voltage converter.

Kakuishi further teaches device according to claim 6, characterized in that the hybrid comprises a hybrid bridge (90) and a current to voltage converter (99, Fig. 4).

4. **Claims 9-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amrany et al. U.S. Patent 6,281,829 in view of Hewinson et al. U.S. Patent 6,288,883, further in view of Kakuishi U.S. Patent 5,287,406 (cited by applicants), and in view of McGinn (5,333,192).

Regarding **claims 9-12,** Amrany et al. in view of Hewinson et al. further in view of Kakuishi teaches a method according to claim 8. However, Amrany et al., Hewinson et al. and Kakuishi in combination does not show two branches of the hybrid bridge are identical. Thus one of ordinary skill would have been motivated to seek a hybrid circuit in order to provide an actual working arrangement taught by Amrany et al., Hewinson et al. and Kakuishi in combination. Such circuits would have been any known circuit of McGinn in the same field of endeavor.

McGinn teaches a resistor network having two identical branches 14a, 14b, 15a, and 15b (Fig. 2, col. 5, lines 22-35) for the purpose of coupling communication signals between the communication line and a telephone facility via a hybrid circuit (col. 3, lines 15-16).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was filing to include within the by Amrany et al., Kakuishi and Hewinson et al. in combination such circuit as taught by McGinn since such modification

would have provided coupling communication signals between the communication line and a telephone facility via a hybrid circuit, as suggested by McGinn in column 3, lines 15-16.

Amrany et al. further teaches the CO 5 (Fig. 1) includes a line card (i.e. integrated circuit) that includes a DSP 11 (microprocessor), an AFE which is separate from a line driver and a hybrid (14). Hewinson et al. further teaches adaptive cancellation bridge ACB having transconductance cells TC1, TC2 and TC3 (FIG. 2) in one arm of a bridge network, while another arm is represented by a line L. The other two arms comprise resistors R1 and R2. Each cell is a variable-gain current amplifier, which is arranged to produce variable impedances, a scaling factor (k) is used for adapting the tunable passive elements (col. 2, lines 30-45).

Kakuishi further teaches the impedance Z obtained by viewing the two-wire line depends on the length and type of cable, a plurality of impedance Zx elements are selectively used. The most typical impedance Zx is equal to Z'/2, in which Z' is a standard terminating impedance of a system (col. 2, line 48 – col. 3, line 38) in order provide a simple and less expensive hybrid circuit (col. 4, line 1-2).

Regarding **claim 13,** Kakuishi further teaches the hybrid comprises a current to voltage converter (99, Fig. 4), the feedback impedance (Zx) of which being adapted so as to be equal to the tunable balance impedance (90).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Inventor	Publication	Number	Disclosure
Hiyoshi	US Patent	5,734,703	A hybrid circuit and data communication apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran, whose telephone number is (703) 305-2341. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service Office at telephone number (703) 306-0377.

cpt CPJ
June 4, 2003

FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER